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Examining the Factors Influencing the Persistence of Students

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ABSTRACT The objective of the paper is to examine the factors that determine the persistence of learners in distance education. It also gives attention to finding out the influence of intrinsic factors, institutional factors, motivating factors and curtailing factors of students who pursue their graduation programmes through the distance education mode on their persistence to continue the programme. The sample has been taken from a diverse student population in Chennai.The analysis is based on the results obtained using the partial least squares regression method. The study has several policy implications for educational administrators who play an important role in charting out policies to retain students from the first year to the second year, or across years that follow.

INTRODUCTION

The present world is dynamic and fast-changing. The student community has adapted itself to this changing world, which, at the same time, poses many new challenges towards learning and acquiring knowledge. The Indian higher education system is one of the largest such systems in the world. Higher education system in India has undergone a manifold increase and improvement. There were only 20 universities and 500 colleges with 0.1 million students at the time India attained independence. This has increased to 903 universities, 39,050 colleges and 10,011 stand alone institutions as of 2017-2018 according to the All India Survey on higher Education (AISHE Portal), developed by the Ministry of Human Resource Development. The total enrolment in higher education has been estimated to be 36.6 million. The enrolment of male students for higher education was 19.2 million. The enrolment of women candidates in higher education was 17.4 million which was 47.6 percent of the total enrolment. Enrollment for distance education constitutes about eleven percent of the total enrollment in higher education in India.

Over the last two decades, research clearly indicates the continuing growth of distance learning at remarkable rates. It has created widespread access to low cost and high qualityhigher education to students at various places and levels.Though there is a massive expansion of students persuing their programme in distance mode especially with the advent and of ICT tools, distance education Institutions have a two fold issue, attracting students to higher education and retaining them enabling their success and graduation. The need to enhance retention rates is more as retention is dynamic despite our colleges and universities striving to develop well-planned,comprehensive and tailormade programs with enriched curriculum. This paper aims to find out the factors that influences students in continuing the programme without withdrawing from their course.

Persistence

The use of the term persistence related to post-secondary education first emerged in the 1980s, when persistence was merely the opposite of attrition or departure from a traditional college (Greer 1980). Sanchez et al. (2017) examined the factors relating to post secondary performance and persistence of GEAR UP students in comparison to their peers and their performance was the same as of other students. Park and Choi (2017) aimed at empirical identification of direct and indirect relationships between the major adult dropout factors and then arrived at a finding that course content, satisfaction, and GPA has direct and indirect relationship with drop out decisions. Thus, it is suggested that students persistence in distance education need to consider an integration of all the factors leading to persistence for a holistic analysis and arriving at meaningful results. The various factors can be broadly classified into four categories.

i) Intrinsic Factors

The intrinsic behaviour of students is said to be related to the values and abilities that they have 'in themselves,' or 'for their own sake,' or 'as such,' or 'in their own right.' An individual's intrinsic factors influence a student's decision to persist or depart. The intrinsic factors considered here are: Scholastic Thirst, Self-efficacy and Locus of Control. Scholastic Thirst, as explained by Cornish et al. (2005) is the motivation that adult learners get when they see value in their education. Holder (2007) finds self-efficacy to be one of the three criteria that differentiate a persistent student from one who is not. Self-efficacy for learning and performance appears to have a correlation with higher confidence in the student to successfully complete a course as well as a higher expectation to do well. You (2018) studied the three way interaction effect of academic stress, self-efficacy and task value on persistence in learning and found that strongly motivated students are less affected by academic stress and could even be a means to boost persistence. The last factor is locus of control. In personality psychology, locus of control is the degree to which people believe that they have control over the outcome of events in their lives, as opposed to external forces beyond their control. Individuals with a strong internal locus of control believe events in their life arise as a result of their own actions.

ii) Institutional Factors

These factors are fourfold, viz., Institutional Support, Study Centre Support, Evaluation Method and Faculty Support. The institution is the administrative head of the any course, while the study centre is the educational overseer. The characteristics of the institution viz., its institutional structure, size, faculty-student ratios, andinstitutional resources, laboratories and its members play an important role in the integration of individuals within the institution. These organizational attributes in higher education include institutional structure, size, faculty-student ratios and institutional resources. The qualities of the institution and the study centre have also been shown to relate to differential rates of dropout.

The support of both these entities have equal importance to the student, as both have a lasting impact on the student's mind. The activities of the institution or study centre leaves an impression on the student, forming the factors for the student to recommend or others from joining the same course or institution. This includes curricula, teaching and learning issues, accessibility and relationships with staff, flexibility and modes of assessment of courses. A number of studies have found social interaction with the college's faculty as related to persistence in college (Davis and DiGregorio 2016; Styger et al. 2015). Instructors' availability through email, telephone, or online chat, the timeliness of their replies, as well as their words of encouragement, the faculty's intimate and direct association with the academic system of the institution were viewed as critical to the respondents' academic success. Evaluation method is a combination of the mode of examination, frequency of examination and other internal assessments. The aggregate of all these mark a student's capacity, but it is also equally important to ensure the comfort level of the students while deciding the assessment pattern, especially in distance education programmes. An important interaction exists between the quality of the institution, the composition of its students, and individual performance and, therefore, persistence in the college .

iii) Curtailing Factors

The two major curtailing factors considered here are academic stress and financial strain. Financial stress relates to the growing pressure of the cost which has increased the financial burden of distance education programmes. Financial strain occurs when a person's financial outgoings for the purpose of education start exceeding his income to a degree that psychologically threatens their sense of purpose for study, their self-esteem, morale etc. It is necessary to find out the ways in which financial issues influence students' decisions to stay with or leave the university. Students belonging to minority communities and those from low-income backgrounds are more likely to be retained if their financial aid package consists of grants as opposed to loans. Academic stress is mental distress arising out of some anticipated frustration over the study period. More than seventy-five percent of the students belong to the working class and find it difficult to balance between work and study. They are not able to do justice to the demands of study and, hence, face academic

stress. The environment in which students live today also contributes a great deal to the levels of academic stress, for instance, the cultural context, balancing family life and expectations of performance from their parents and peers.

iv) Motivational Factors

Lin et al. (1999) found the tendency of students with a balance of both extrinsic and intrinsic motivation tend to perform best in the college-level course work. Firat et al. (2017) found that the level of intrinsic motivation triggers and sustains the interest of the open and distance education students when it comes to learning on their own. Cost Benefit Analysis, Academic Motivation and Social Integration are the motivational factors that have been taken into consideration. Cost Benefit Analysis provides a simple, quantitative approach for deciding on going ahead with a decision. CBA adds up the total costs of a programme or activity and compares it against its total benefits. The technique assumes that a monetary value can be placed on all the costs and benefits of a programme, including tangible and intangible returns to other people and organizations. With regard to persistence, a person has a tendency to withdraw from college when he finds the yield of an alternative form of investment of time, energies and resources offer greater benefits relative to costs.

According to Schunk et al. (2008), academic motivation refers to the cause of behavior that is in some way related to academic functioning and success. It is related to the quantum of efforts the students put forth, the effectiveness in the regulation of their work, the endeavors they choose to pursue, and their persistence when faced with obstacles. Academic motivation and Social Integration have been explained by the Tinto's (1993) model. Student persistence toward completion was largely a function of the student's academic and social integration into the college or university environment. According to Tinto, the extent of academic integration is determined primarily by the student's academic performance, and, social integration is a function, first of the quality of peer-group interactions and, second, of the quality of the student's interactions with the faculty members.

Review of Literature

In recent years, there have been many studies on retention of students in distance education courses in many parts of the world. An Australian case was submitted by Waterhouse et al. (1993) by the name of 'Strategies to Improve Retention of Postgraduate Business Students in Distance Education Courses'. The author has identified a range of situational, institutional and dispositional factors which impacted upon students' ongoing participation in higher education.

The Institute of Canadian Bankers undertook research on 553 students, Their paper titled, 'Antecedents to Dropout in Distance Education: Does One Model Fit All?' was authored by Bernard and Amundsen (2008). This study was conducted to ascertain Tinto's Model of Student Persistence and Withdrawal in Higher Education having a hold across a variety of distance education course types. Their results indicated that course factors may exert a potent influence on the relative importance of major elements in Tinto's model. It was argued further that future models of course attrition recognize the contribution of differing course characteristics.

A paper was published by Ibrahim et al. (2007) from the Arab Open University titled, 'Institutional Factors Affecting Students' Intentions to Withdraw from Distance Learning Programmes in the Kingdom of Saudi Arabia'. The focus of the paper was on the relationship between institutional factors and the intention of undergraduate students to withdraw from or complete their distance education courses in the Arab Open University (AOU). The model was examined on a pilot sample of 127 students and then re-examined a field study of 587 students. The study seemed to suggest the critical dependence of the intention to stay in the Arab Open University (AOU) distance learning (DL) programs on the quality of instructors and the variety of technology used for the support and delivery of these (DL) programmes .

'Motivators of Students' Persistence on Distance Learning Programmes in Ethno-religious Crisis States in Nigeria: Implications for Counselling' is the title of a paper from Nigeria by Okopi and Pindar (2013). This study determines students' persistence on distance learning programmes despite ethno-religious crisis in twelve Northern States in Nigeria.

Sabharwal (2005) from Arizona, USA, has authored a paper titled, 'Factors Affecting Persistence Rates among Arizona State University Freshmen and Implications for Policymaking.' Data for this study was collected from the 2001 First Year Student Survey (FYSS). Several indi-

cators were used for the measurement of the ways a student can be integrated into the system in order to increase the persistence rates.

Thomas (2002) from the United Kingdom authored an article titled 'Student retention in higher education: the role of institutional habitus'. She found external pressures created by the student funding mechanisms as high for higher education in England. These issues tend to be the exacerbation for students from non-traditional backgrounds.

Apart from such diverse theories across countries, there are similar studies relating to online courses. One such study is titled 'Factors Associated with Student Persistence in an Online Program of Study: A Review of the Literature' by Hart (2012) of the Southwest Baptist University. This integrated literature review examined factors associated with the ability of students to persist in an online course. Lack of persistence in online education and consequence of its attrition, are problems identified within the United States and other countries.

Such similar studies have also been conducted among under-graduate students. Several theories have been advanced to describe and explain undergraduate persistence. The two most widely used theories are Tinto's (1993, 1997) Student Integration Model and Bean and Metzner's (1985) Model of Student Attrition. Tinto (1993, 1997) in his work on college persistence emphasized on the importance of social and academic integration. Bean and Metzner (1985) discussed how psychological, environmental, and academic variables interact to determine whether students remain in college. Cabrera et al. (1992) combined Tinto's (1993) integration model with Bean's attrition model and concluded that in addition to shaping student commitments to staying in school, environmental factors influence socialization and academic experiences of the students.

Objectives

- To find out the factors that determine the persistence of learners in distance education.
- To find out the influence of Intrinsic, Institutional, Motivational and Curtaiilng factors on the Persistence of learners in Distance Education.
- To construct a model depicting the relationship between Intrinsic, Institutional, Motivational and Curtaiilng factors on Persistence of learners in Distance Education.

RESEARCH METHODOLOGY

The data for the study were collected from students pursuing distance education programmes in Chennai during the Academic year 2017-2018. The variables chosen were based on a review of the relevant literature. Apart from it, focus group interviews were conducted with the students, faculty and administrators to finalise on 12 variables. The questionnaire designed with 66 questions was meant to measure the constructs defined in the model. A5 point Likert's scaling technique was used in the questionnaire. The questionnaires were administered to 650 respondents, and the researcher received 632 completed questionnaires. Reliability, validity and absence of multicollinearity were established through appropriate statistics tests.

PLS-SEM is a soft modeling approach which is a good alternative to CB-SEM used since the data distribution is skewed. Partial least squares structural equation modeling was adopted for the estimation of the structural relationship between the exogenous and endogenous variables (Hair et al. 2011). The researcher of this paper tested her model using smart PLS 3, since the model has both latent constructs and multiple indicators. The following hypothesis were formulated

- ***H1:*** Intrinsic factors, which include scholastic thirst, self-efficacy and locus of control have a positive relation to persistence of the distance learners.
- ***H2:*** Supporting factors, which include institutional support study centre support, faculty support and evaluation methods have a positive relation to persistence of the distance learners.
- ***H3:*** Motivating factor, which include cost benefit appraisal, social integration and academic motivation have a positive relation to persistence of the distance learners.
- ***H4:*** Curtailing factors, which include scholastic thirst, locus of control and self-efficacy have a negative relation to persistence of the distance learners.

RESULTS

SEM is an extended version of multiple regression that enablesthe simultaneous testing

of the series of multiple regression equations. So the author used SEM for testing the hypothesised relationship as shown in the Figure 1.

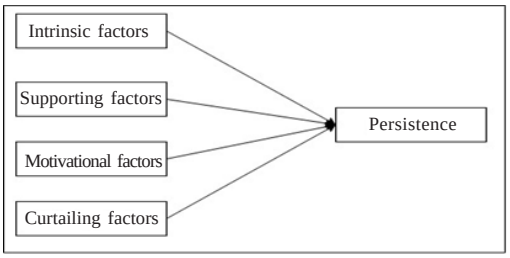

Fig. 1. Theoretical model
Source: Author

In the case of reflectively measured constructs, the first step was to examine the indicator loadings. Loadings above 0.70 indicate that the construct explains over fifty percent of the indicator's variance. In the course of indicator reliability assessment, twelve indicators were removed from the initial model as they exhibited loadings clearly below 0.70 and thus would lead to adverse effects on the construct measures. The next step involve the assessment of the constructs' internal consistency reliability.

Table 1 shows the construct reliability also as exceeding the value 0.7 and the Cronbach's alpha of items meets the recommended value of greater than 0.7. Next, the convergent validity of the reflectively measured constructs was examined. Convergent validity measures the extent to which a construct converges in its indicators by explaining the variance in the items. The *AVE* of all constructs is greater than 0.5 it ensures the convergent validity.

Table 1: Measurement model

Constructs/indicators	*CR*	α	*AVE*
Intrinsic factors	0.883	0.824	0.655
Supporting factors	0.927	0.905	0.681
Motivational factor	0.902	0.869	0.605
Curtailing factor	0.912	0.883	0.634
Persistence	0.874	0.808	0.635

Table 2 shows the assessment of discriminant validity, here the $\sqrt{AVE}$ of each construct which was seen as greater than the correlation among the construct, indicating the validity of the discrimination seen in each construct. Finally, the standardized root mean residual (*SRMR*) for the model was calculated to ensure the absolute measure of fit. The data fits well with the theoretical model with the *SRMR* value less than the threshold value 0.8 and the *VIF* value of all the constructs were less than 3 confirming the absence of multicollinearity.

Table 2: Discriminant validity

Construts	*CFA*	*IFA*	*MTA*	*PER*	*SFA*
CFA	0.79				
IFA	-0.15	0.80			
MTA	-0.11	0.51	0.77		
PER	-0.17	0.57	0.59	0.79	
SFA	-0.15	0.30	0.50	0.49	0.82

Following the confirmation of the reliability and validity of the construct measures, the next step was the assessment of the results of the structural model. The following empirical reports were obtained from the structural model, standardised path coefficient, *f* square and respective *t* value as shown in Table 3.

The results presented in Table 3 and Figure 2, indicate the announcement of the hypothesised model fitting in to the survey data. The first hypothesis (*H1*) considers the impact of intrinsic factors as having a positive influence on persistence and found to be significant (β=0.348; t=6.687; p<0.001). The second hypothesis (*H2*) indicates the significance of the relationship between the supporting factors and persistence (β=0.229; t=5.224; p<0.001). The third hypothesis (*H3*) establishes the significant and the positive influence of motivational factor on persistence. According to the results seen in Table 3, the path relationship between these

Table 3: Results of the structural model

Relationship among constructs	*Hypothesis*	*β*	*t-value*	*F square*
Intrinsic factors(IFA) -> Persistence(PER)	*H1*	0.348	6.687***	0.177
Supporting factors(SFA) -> Persistence(PER)	*H2*	0.229	5.224***	0.077
Motivational factors(MTA) ->Persistence(PER)	*H3*	0.296	5.890***	0.106
Curtailing factors(CFA) -> Persistence(PER)	*H4*	-0.055	1.661ns	0.006

***P<0.00, NS: Not significant

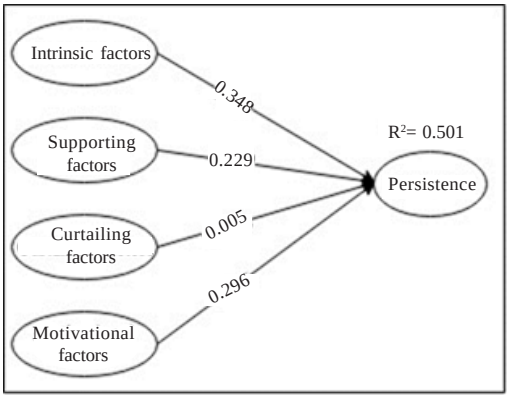

Fig. 2. Structural model
Source: Author

two constructs is found to be significant (β=0.296; t=5.890; p<0.001*)*. The path relating to the fourth hypothesis (*H4*) curtailing factor has a negative influence on persistence but it is found to be insignificant (β=-0.055; t=1.661; p>0.05).

This shows that intrinsic factors, supporting factors and motivating factors have significant positive relationship on persistence but the curtailing factors comprising academic stress and financial strain have a weak negative influence on the student's persistence. Among the intrinsic factors, scholastic thirst accounts for the highest impact. However, self-efficacy and locus of control is not long behind in impacting the totality of the intrinsic factors. Cost-benefit-analysis accounts for the highest impact among the motivational factors. Social integration and academic motivation are also close to cost-benefit analysis in determining the motivation behind a student's persistence under the support factors, the study-centre support is the most encouraging factor. Faculty support and institutional support are also considered important, according to the results of the survey. Both curtailing factors, namely, financial strain and academic stress have been found to curtail persistence by a large degree.

Apart from these, the Cohen's *f* square value is used for the evaluation the magnitude of effect of each independent variables on the dependent variable. This study shows the intrinsic factor having a high impact on persistence with the *f* square (effect size) value of 0.177. It shows the intrinsic factor playing an important role and the persistence of the students as highly dependent on the intrinsic factors. The examination of the endogenous constructs' predictive power shows persistence, the primary outcome measure of the model, having a substantial R^2 value 0.501. Hence, the variance explained by all these constructs on persistence is 50.1 percent. The predictability of these constructs on persistence is seen as good. It reveals that 50.1 percent of the persistence level of the students depends on the intrinsic factor, supporting factor, motivational factor and evaluatailing factor.

Table 4 shows the value of Q^2 obtained from the blind folding procedure, providing the model predictive relevance. The value of Q^2 is high when the smaller difference exists between the original and the predicted value and vice versa. In this study the value of Q^2 of endogenous construct (persistence) is seen as greater than zero (Q^2 = 0.296), indicating the hypothesised model's predictive accuracy as acceptable for persistence.

Table 4: R square, Q square and GoF

Endogenous construct	*R square*	*Q square*	*GoF*
Persistence	0.501***	0.296	0.56

***P<0.001

Goodness of Fit (GoF) index is defined as the geometric mean of the average communality and the average R^2 for all endogenous constructs. It is used for the decision on the entire-prediction power of the complex model by accounting for the performance of both measurement and structural parameters.

$$GoF = \sqrt{\overline{AVE}} * \sqrt{\overline{R^2}}$$

The GoF values for both samples were found to be .56 (GoFSmall = 0.10, GoF Medium = 0.25, GoFLarge = 0.36). Hence, the author concludes that the theoretical model has adequate predictive power.

Each variable is considered as dependent and the rest of the variables are considered as independent in the assesment of common method bias. In this study all the VIF values have been seen as less than 3.3. Hence, the conclusion is that the model can be considered free of common method bias.

DISCUSSION

Student retention and studies on persistence rate of students have long been of interest to

educators and administrators all over the world. In the context of Distance Education,the percentage of students who withdrew is found to be significantly high than that in conventional learning. Though learning through distance mode provides flexibility and convenience to the learners, lack of persistence and its consequence of attrition is a complex concern which needs to be addressed. This study analyses the factors that influence students pursuing programmes under distance learning mode in Chennai city. A number of studies have been done focusing on various factors that affect persistence of learners in distance education. But this study has adopted a holistic approach and has developed a comprehensive model that examines how multiple variables influence a student to persist in a programme.

From the literature review various items that affect persistence have been identified and grouped them under four factors,viz., Intrinsic, Motivational, Supporting and Curtailing. After establishing the reliability and validity, SEM was performed and found to be fit. The results show that the intrinsic factors have significant strong effect on persistence (0.348) followed by the motivational factors (0.296) and supporting factors (0.229). Though insignificant, the negative sign indicates that the curtailing factors show the negative effect on persistence.

From this study, the researcher has found that a student's intrinsic desire to pursue the programme and his motivation level determines his persistence level in distance learning. It coincides with the study conducted by Firat et al. (2017) wherein he has concluded that Intrinsic motivation triggers and sustains the interest of students in an e-learning environment. Scholastic Thirst and Self-efficacy are found to have the great impact on persistence which again supports the findings of Park and Choi (2017) where they have established an indirect relationship between Scholastic aptitude and dropout decisions. The confidence of a student and the capacity to focus, combined with the skills required for the completion of the course drive a student towards the successful completion of the course.

Institutional support and staff interaction plays a major role in retaining students and progressing them to the higher semesters. The results also confirm with the findings of Davis and DiGregorio (2016). Enthusiasm in the academic tasks and a good social skills seem to spur a student to do better. The helpfulness of the administrators and the timely communication on course details are simple but important factors for the support to a student. Faculty support and Institutional support are also considered important, according to the results of the survey. Knowledge and approachability of the faculty, and their promptness in answering doubts, constitute a vital support factor. Good rapport between students and teaching staff seem to have a central role in the success level of students persistence level.

The researcher's finding relating to academic stress contradicts with the findings of You (2018) who states that academic stress can be a motivator to persistence under some conditions. Family expenses and difficulty to pay the required fees for the course contribute to financial strain. Most of the distance learners belong to working population or first generation learners and they do have other commitments apart from the strain of paying the fees. Lack of finance is often considered to be the real problem that discourages persistence. The researcher's model also shows that academic stress and financial strain are negatively related to persistence.It coincides with the findings of Terkla (2005). Hence, students should be relieved from academic stress and provided with financial aid to enable them to continue their programme.

CONCLUSION

The findings of this study seems to confirm those of the earlier research on persistence. A majority of studies have examined the causal relationship between a few variables and persistence. Persistence in distance education is a complex phenomenon that needs examination of a multitude of variables. While Tinto's theory stands as a seminal theory in this field, this paper highlights, many more factors that have a strong bearing on the persistence of students. The results obtained have an implication on many parties. Distance learners should first have an intrinsic thirst to complete the programme. If they have a positive outlook, they can be motivated through provision of education at areasonable cost and smoothly integrating them into the system. The institutions and the study centres also play a major role since they are the point of contact for the learners. The experience

they gain plays a vital role in determining their persistence. Financial aids and removal of academic stress shall have a positive effect on the continuation of the distance learners in their programme of study.

RECOMMENDATIONS

India has emerged as a service-based, knowledge driven economy. Hence it is very important to build a knowledgeable work force. Higher education is undergoing a sea change with new regulatory arrangements and focus on expanding the GER to sustain a rapid economic growth and promote international competitiveness. Distance Education with new frontiers in information and communication technology can foster the development of Higher Education in a big way. Institutions offering distance education indulge in attracting and retaining students. The most challenging role of such institutions is to encourage students for persistence. This empirical research proves that, instead of concentrating on specific factors, a holistic approach adopting a proper combination of all factors viz., Intrinsic factors, Motivating factors and Institutional factors should be adopted for improving the retention of students in the Distance Learning Programmes. Besides, Higher Educational Institutions, Government and employers may come forward in providing financial support in the form of scholarships and sponsorships for mitigating the risk of attrition rates in distance learning programmes.

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